

AMENDMENTS TO THE DRAWINGS:

Please replace Fig. 1 with the attached replacement sheet of drawing now indicating that Fig. 1 is prior art.

REMARKS:

Entry of the foregoing and reexamination and reconsideration of the subject application, as amended, are respectfully requested in light of the remarks which follow.

Consideration of Information Disclosure Statement

On page 28 of the Office Action the Examiner indicated that the Angelopoulos document was not considered because it did not match publication number 2003/0123010. There was a typographical error on the Information Disclosure Statement. Thus, the Angelopoulos document to be considered is U.S. published application 2002/0123010. A revised Information Disclosure Statement is enclosed for initialing by the Examiner.

Objections to the drawings, specification and claims

The Office Action asserted that Figure 1 should be designated as "Prior Art." A corrected Figure 1 is included herewith.

Claim 73 was objected to for the misspelling of "Ohnishi." Appropriate correction has been made by the above amendment.

The specification was objected to as failing to provide proper antecedent basis for the subject matter of claim 71. The specification has been amended to as to provide literal support for claim 71.

The Office Action has objected to the recitation of "positive-working photoresist" in claims 43, 47 and 54. Those claims have been revised to recite a "positive-acting photoresist", which finds literal support in the specification, e.g., at page 2.

The Office Action also questioned the discussion of the meaning of diamondoids on pages 10-11 of the specification. On page 10, line 24 of the specification, it is stated that "[d]iamondoids include 'lower diamondoids' and 'diamondoids,' as these terms are defined herein, as well as mixtures of any combination of lower and diamondoids." Page 11, line 1 states that "[t]he term 'lower diamondoids' refers to adamantane, diamantane and triamantane and any and/or all unsubstituted and substituted derivatives of adamantane, diamantane and triamantane." Starting at line 5 it is further stated that "[t]he term 'diamondoids' refers to any and/or all substituted and unsubstituted tetramantane components; to any and/or all substituted and unsubstituted pentamantane components . . ." Thus, one must make note of

the context in which the term "diamondoids" is used. On page 11 of the specification it is clearly referring to the higher diamondoids, i.e., tetramantane and higher diamondoids.

For at least the above reasons, withdrawal of the objections to the drawings, specification and claims is requested.

Indefiniteness rejections under 35 U.S.C. § 112, second paragraph

Claims 43, 46, 47, 51, 53, 54, 61-66 and 72-83 were rejected under 35 U.S.C. §112, second paragraph, for various reasons. These rejections are traversed.

At the outset, note that claims 51, 63, 64, 72, 81, 82 and 83 have been cancelled by the present amendment. Hence any rejections pertaining to those claims have been rendered moot and should be withdrawn.

Claims 46, 53, 61 and 66 were alleged to be indefinite with respect to the definition of the "R₄" substituent group and its apparent conflict with the definition of R₄ in the corresponding independent claims. The recitation of R₄ in the structures and text of claims 43, 53, 61 and 66 was a typographical error, which has now been corrected to recite "R₅" instead of "R₄". This amendment also addresses the objection under 37 C.F.R. 1.75(c) set forth on pages 3-4 of the Office Action.

The spelling of "o-nitrobenzyl" has been corrected in claim 76.

Claim 62 and its dependent claims were alleged to be indefinite with respect to the definition of the "R₃" substituent group. The recitation of R₃ in the structure of claim 62 was a typographical error, which has now been corrected to recite "R₂" instead of "R₃".

Claim 73 and its dependent claims were alleged to be indefinite because of the recitation of "any of the diamondoid containing monomers" in claim 73. In particular, it was alleged that there was insufficient antecedent basis for that phrase. Such, however, is not the case. While the words "diamondoid containing monomer" are not found in independent claims 43, 47, 54, 62, 67 or 71, it is clear from the structures set forth in those claims and the associated explanatory text in the specification that the recitation of "any of the diamondoid containing monomers" in claim 73 is referring to the diamondoid monomer units of the polymer structures set forth in claims 43, 47, 54 and 62, and to the recited monomers in claims 67 and 71. Hence the meaning of these claims is clear.

For at least the above reasons, withdrawal of the indefiniteness rejections is requested.

Enablement rejection under 35 U.S.C. § 112, first paragraph

Claim 71 was rejected under the first paragraph of 35 U.S.C. § 112 as allegedly being based on a nonenabling disclosure. This rejection is traversed.

Claim 71 recites a positive-acting photoresist composition comprising a base resin polymerized from various diamondoid monomers which contain oxygen, nitrogen, boron or sulfur in the ring structure of the diamondoid. Methods for making diamondoid derivatives are described, for example, at pages 15-29 of the specification.

According to *In re Marzocchi*, 169 USPQ 367, 370 (1971):

The only relevant concern of the Patent Office under these circumstances should be over the *truth* of any such assertion. The first paragraph of § 112 requires nothing more than objective enablement. How such a teaching is set forth, either by the use of illustrative examples or by broad terminology, is of no importance.

As a matter of Patent Office practice, then, a specification disclosure which contains a teaching of the manner and process of making and using the invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented *must* be taken as in compliance with the enabling requirement of the first paragraph of § 112 *unless* there is reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support.

The Office Action has made the bald assertion that it would not be possible to make the claimed compounds given the guidance provided by the present specification. The Office Action has failed to provide any *reasons* why the methodology set forth in the specification would not allow one of skill in the art to make the claimed diamondoid-containing base resins. Hence, this rejection must be regarded as improper and should be withdrawn.

Rejections under 35 U.S.C. §§ 102 and 103

Rejections of claims 43-61, 62-66, 70 and 72-82 were set forth over various alleged prior art documents. These rejections are traversed.

At the outset, note that claims 50, 51, 58, 63, 64, 70, 72 and 81-83 have been cancelled by the present amendment. Hence any rejections pertaining to those claims have

been rendered moot and should be withdrawn (e.g., rejections based on Sato et al. (U.S. published application 2003/0008241) and Fujimori et al. (U.S. published application 2003/0134225)).

The present invention relates to photoresist compositions comprising diamondoid derivatives. Most of the "prior art" rejections set forth in the Office Action appear to be based on the theory that the claimed photoresist compositions encompass polymers having adamantane pendant groups or certain derivatized adamantane pendant groups, but not including pendant groups which are diamondoids higher than adamantane. However, the present application clearly contemplates photoresist compositions having co-polymer base resins with diamondoids higher than adamantane. See, for example the specification at page 32, last paragraph, and page 33 (see the title at the top of page 33: "Co-polymer base resins with diamondoids higher than adamantane") through page 35. To further define the claimed photoresist compositions, independent claims 47 and 54 have been revised to recite that the base resin has "a monomer with a diamondoid-containing pendant group higher than adamantane." Support for this amendment can be found at least on pages 32-35 of the specification, as discussed above.

In view of the amendments to claims 47 and 54, it is believed that the concerns set forth in the Office Action have been addressed at least with respect to Hada et al. (U.S. Patent No. 6,087,063), Padmanaban et al. (U.S. Patent No. 6,115,085), Takechi et al. (U.S. published application 2001/0003640), Uetani et al. (U.S. published application 2001/0014428), Nakanishi et al. (U.S. published application 2001/0016298), Nozaki et al. (U.S. Patent No. 6,013,416), Okino et al. (U.S. Patent No. 6,303,266), Aoai et al. (U.S. Patent No. 6,245,485), Liu et al. (WO 02/057201), Kodama et al. (U.S. Patent No. 6,291,130), Ushirogouchi et al. (U.S. Patent No. 6,440,636), Sato et al. (U.S. Patent No. 6,479,211) and Kaimoto et al. (U.S. Patent No. 6,120,977).

The §103 rejection based on the combination of Aoai et al. and Liu et al. is also defective because there is no appropriate motivation to combine the teachings of those documents. As recognized by the Office Action, *the object of Aoai et al. is to:*

provide a positive resist composition suitable for the exposure using a light source of 220 nm or less, particularly an ArF excimer laser beam (193 nm). More specifically, the object of the present invention is to provide a positive resist composition which ensures, on use of an exposure light source of 220 nm or less, high sensitivity, good

resolution, sufficiently high resistance against dry etching, satisfactory adhesion to the substrate, and superior developability even with a developer conventionally used for resists (for example, a 2.38% aqueous tetramethylammonium hydroxide solution).

Liu et al. relates to polymerizable higher diamondoid derivatives. Liu et al. notes that adamantane-containing polymers show high glass transition temperatures and high deposition temperature and good film-forming properties, and then makes the general statement that "polymers based on higher diamondoids would be expected to have even better properties" (page 107). However, Liu et al. has no recognition whatsoever that the higher diamondoid derivatives would fulfill the specific characteristics which are *the object of Aoi et al.*, for example, to provide a positive resist composition which ensures, on use of an exposure light source of 220 nm or less, high sensitivity, good resolution, sufficiently high resistance against dry etching, satisfactory adhesion to the substrate, and superior developability even with a developer conventionally used for resists. Consequently, there is insufficient motivation to combine the teachings of Aoi et al. and Liu et al.

The claims have also been rejected over Dammel (U.S. published application 2005/0147915). Dammel has a filing date of December 29, 2003. The present application was filed January 23, 2004, but claims the benefit of priority of U.S. provisional application Serial No. 60/508,222, filed October 1, 2003. Hence, Dammel is not prior art to the present application.

For at least the above reasons, withdrawal of the §§ 102 and 103 rejections is requested.

CONCLUSION:

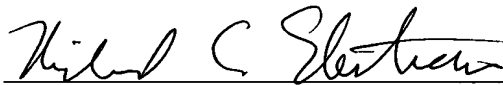
From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order and such action is earnestly solicited.

In the event that there are any questions concerning this amendment or the application in general, the Examiner is respectfully requested to telephone the undersigned so that prosecution of the application may be expedited.

Respectfully submitted,

BUCHANAN INGERSOLL PC

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By: 
Richard C. Ekstrom
Registration No. 37,027

P.O. Box 1404
Alexandria, Virginia 22313-1404
(650) 622-2300